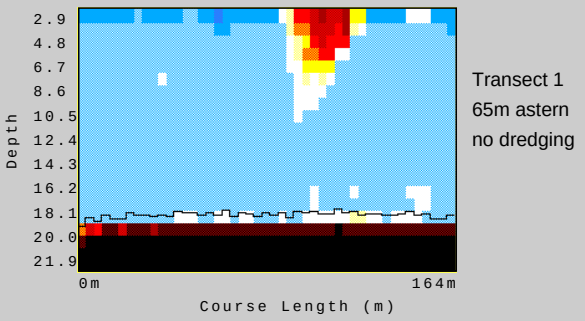
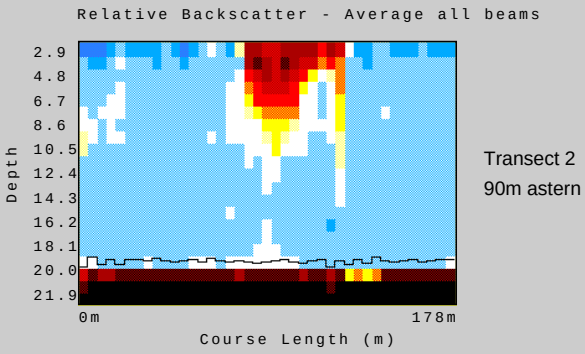
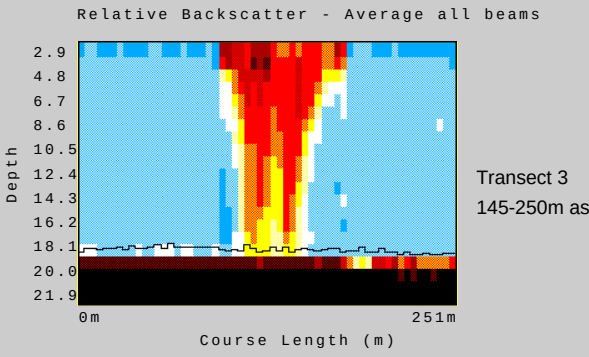


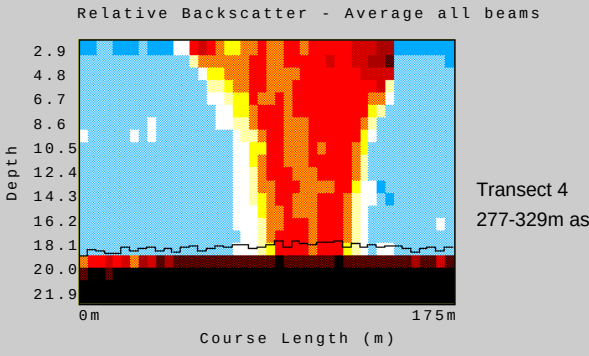
Transect 1
65m astern
no dredging



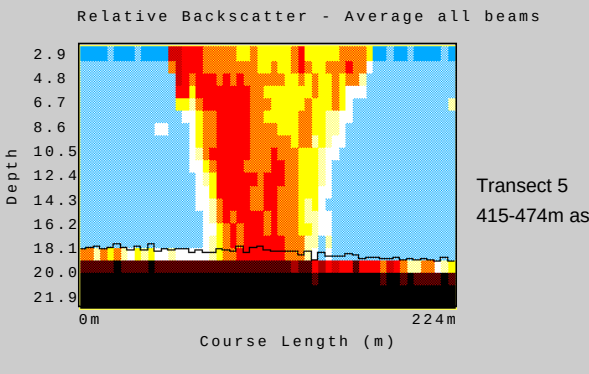
Transect 2
90m astern



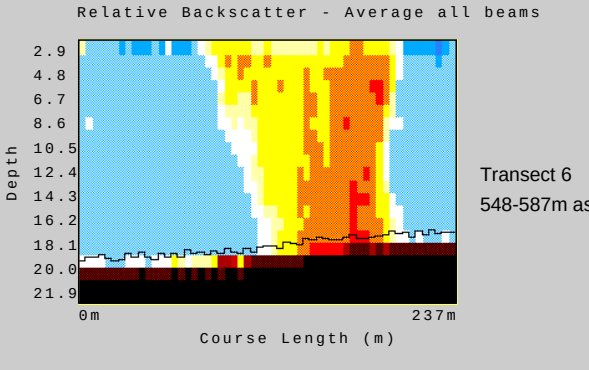
Transect 3
145-250m astern



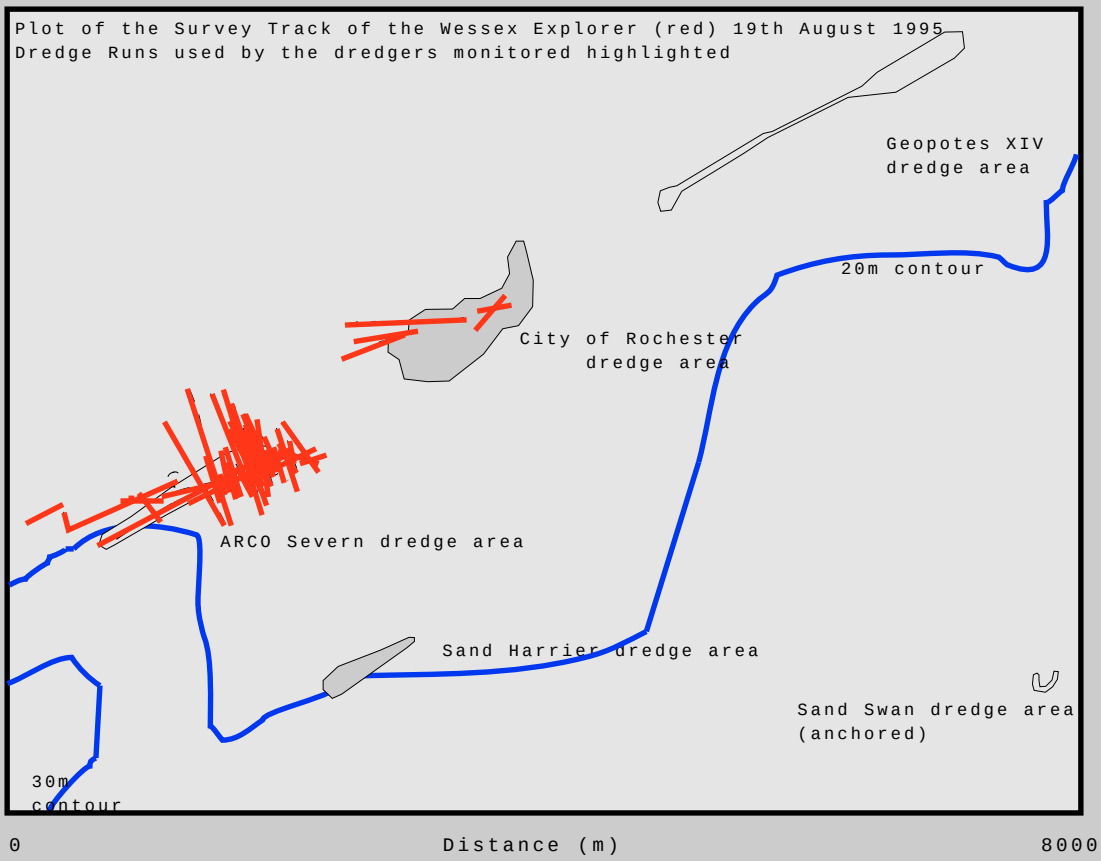
Transect 4
277-329m astern

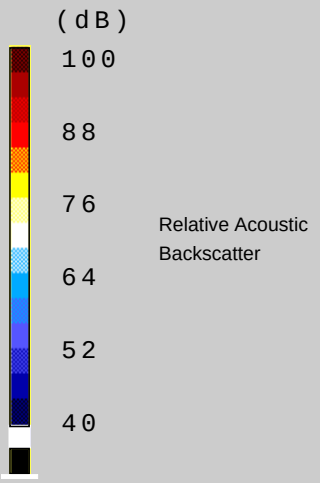


Transect 5
415-474m astern



Transect 6
548-587m astern





Relative Acoustic
Backscatter

Composite Plot of Plume Monitoring Campaign carried out on the 19th August 1995, English Channel. The Acoustic Backscatter Transects were obtained using an RDI 1200kHz BroadBand Acoustic Doppler Current Profiler.

The series of transects depicted on the left were obtained whilst monitoring the plume from the TSHD ARCO Severn.

Transect 1 was taken before dredging commenced, in a position close astern of the ARCO Severn (less than 65m) to determine the appearance of the wake of the dredger, as obser ved by the ADCP. This clearly shows the appearance of aeration in the water caused by the passage of the vessel, and the effect of the single propellor. It is indistinguishable from a dredge plume and reinforces the need for competent field operations with rigorous survey practices.

Transect 2 was obtained immediately astern of the dredger, less than 20m, just as overflow commenced. It is clear that the overspill has not yet reached the seabed. It is known from overspill samples taken that t here is very little solids content to the overspill at this stage. The 'finger' of material reaching down the right hand side of the dredger is due to the ship being trimmed slightly to starboard, thus overspilling more material that side, rather than the port side. The small target area at the seabed is most probably the benthic plume formed by the draghead. The total suspended solids concentration of a surface sample near the centreline of the plume is 96mg/l.

Transect 3 at 145-250m astern sh ows the overspill from both sides of the vessel reaching the seabed. Turbulent diffusion of the plume has not reached the point where distinction between the port and starboard sources is impossible.

Transect 4 at 277-329m astern records the two separte plumes from the 3rd transect joining together to form a single plume. The plume is stll relatively narrow, with little lateral diffusion or dispersion. Total suspended solids

Figure 4.2.2.5a